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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,616	09/12/2003	Takehito Washizawa	116779	6119
25944	7590	04/19/2005		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER PARKER, KENNETH	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/660,616	Applicant(s) WASHIZAWA ET AL	
	Examiner Kenneth A. Parker	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,3 and 4 is/are allowed.
- 6) ☒ Claim(s) 2 and 5-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/2/03</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The language "spacers being a mixture of a single element and an aggregate" is not understood. It is assumed for examining purposes that this language included a molecular aggregate such as a polymer, and therefore meets any spacer.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 5, 7-8, and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakamoto et al 04301621.

Figures 3 and 4 show an angled set of spacers. So there reference shows, with respect to claim 5: **A liquid crystal device**, comprising: a pair of substrates arranged to face each other with a sealing material interposed therebetween (figure 2); liquid crystal and spacers injected into a space surrounded by the pair of substrates and the sealing material, and the space is sealed, one of the pair of substrates having a plurality of pixel regions and non-pixel regions formed around the pixel regions; and the spacers being arranged at a predetermined angle with respect to an arrangement direction of the pixel regions in plan view (see figures 3 and 4).

The reference further shows with respect to claim 7 the liquid crystal device according to claim 5, the spacers being arranged in the non-pixel regions.

The reference further shows with respect to claim 8 the liquid crystal device according to claim 7, a light shielding layer being formed in portions corresponding to the non-pixel regions, where the spacers are arranged.

The reference further shows with respect to claim 12 an electronic apparatus, comprising: the liquid crystal device according to claim 5 (the liquid crystal device made is an electronic apparatus).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim 2 is are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaiba 2002072218 in view of Poliniak et al 6063194, Stoessel et al 6702419 and Gaylo 2004005182 .

The primary reference discloses the claimed invention including

An apparatus comprising:

a nozzle head (each of the openings) to discharge the spacer dispersion solution from a plurality of nozzle holes, while scarming along a predetermined scanning direction,

the nozzle head being rotatable (not shown) such that an arrangement direction of the plurality of nozzle holes is inclined at a predetermined angle with respect to a direction perpendicular to the scanning direction.

Excepting the rotatability of the nozzles (see translation page 1 and figure on cover). It was well known that printing apparatuses needed adjustability of the head angle to maintain alignment. Although this is the exact opposite of applicant's reason for the adjustability, the claim only requires that the head be rotatable. The secondary references each show the adjustability, providing evidence of the above mentioned assertion. Poliniak et al 6063194, Stoessel et al 67419 and Gaylo 2004005182 all show printing systems where nozzle heads are adjustable, thereby showing that it was known to make the nozzle head adjustable, with Stoessel indicating the need for alignment in columns 1-2. The systems described by the secondary references vary, but they are equivalents in the sense that they all need to maintain alignment of a print head with an item being printed upon. Therefore it would have been obvious to one of ordinary skill, to had relative adjustability of the head of the primary reference, in order to enable maintenance of the correct (parallel to feed direction) alignment.

Claim 6, 9, 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Sakamoto et al 04301621.

Re claim 9. Not shown is the liquid crystal device according to claim 5, the spacers being colored. Black was well known for preventing light leakage, and alignment layer over the spacer was well known for preventing disturbing the alignment condition.

Re claim 6. Not shown is the liquid crystal device according to claim 5, the spacers being in the form of a mixture of a single element and an aggregate (met as interpreted in the rejection under 112 above), the arrangement density of the spacers is 50 to 300/mm.^{sup.2}, and the average number of spacers per liquid drop is 0.2 to 3 (both not shown).

The density of spacer (per mm or per drop of liquid crystal) was a well known result effective variable, where it was well known that too little gave insufficient dimensional stability, and it was well known that too much gave optical abnormalities.

As it has been held that the optimization of a result effective variable was at least obvious, the selection of this variable would have been within the ordinary skill level.

11. The liquid crystal device according to claim 5, a fixing layer fixing the spacers to the substrate being formed on the surfaces of the spacers. It was well known to glue the spacers with a fixing layer as claimed so that the substrates are well adhered to each other.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over in view of Sakamoto et al 04301621 in view of Utsumi et al 20030002005, Miyashita 20030058399, and Matsuyama et al 20020093617.

Not shown re claim 10 is the liquid crystal device according to claim 5, a process of controlling the alignment of the liquid crystal being performed on the surfaces of the spacers. It was well known that using an alignment treatment on a spacer improves the alignment condition around the spacer, whether a pillar type or round spacer. Utsumi et al evidences this, teaching that a treatment can be used to reduce light leakage around the spacer (page 7, lines 137-138), and the other reference evidence that it was well known also to the pillar type devices.

Allowable Subject Matter

Claims 1 and 3-4 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

None of the prior art taught or suggested such an apparatus, or method where head was at an angle or inclined to the scanning direction.

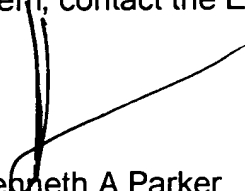
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A. Parker whose telephone number is 571-272-2298. The examiner can normally be reached on M-F 10:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kenneth A Parker
Primary Examiner
Art Unit 2871